INTRODUCTION TO SEMICONDUCTORS AND CLEANROOM PROCESSING

Credit Hours: 4 Semester Hours

Pre-Requisite: None

General Course Description:
This course is a broad introduction to semiconductor and integrated circuit manufacturing from a technician and maintenance perspective. In lecture, students will learn about what a cleanroom is, why it's important to gown up, to work in a cleanroom and have a broad non-quantitative introduction to semiconductor processing such as diffusion, deposition, lithography, and dry and wet etching, planarization, and testing. All students will understand academic and career fields in the semiconductor ecosystem. They will practice the protocols for cleanroom suit gowning. Using a computer, students will access and follow standard operating procedures and checklists while observing safety requirements. This course emphasizes the use of hand-tools to perform inspection, maintenance and repair of mechanical fasteners and fixtures associated with semiconductor fab and sub-fab equipment.

The Introduction to Semiconductors and Cleanroom Processing course must cover at least seventy percent of the following learning outcomes, and must cover all learning outcomes marked with an asterisk (*)

Students who successfully complete an Introduction to Semiconductors and Cleanroom Processing course are expected to demonstrate all of the following:

1. **Demonstrate the capability of working safely in a cleanroom environment for appropriate gowning and cleanliness standards. ***
2. **Articulate how a semiconductor wafer is manufactured and processed to become an integrated circuit including basic semiconductor concepts. ***
3. **Perform standard operating procedures efficiently in a semiconductor manufacturing cleanroom environment with a focus on participating as a team in pre-task planning, and accurately completing tasks in a digital checklist accessed in shared productivity tools. ***
4. **Articulate chemistry and chemical safety used in semiconductor fabrication with an awareness of semiconductor material properties. ***